AMENDMENTS TO THE CLAIMS

Please replace the claims in this application with the following claims:

1. (New) A separation system for use in removing contaminants from fluid comprising:

a phase reaction chamber, wherein the phase reaction chamber comprises:

a distribution header and at least one atomizer spray nozzle for converting a contaminated fluid to a contaminated mist;

a vacuum pump for providing a low energy, high vacuum environment in the phase reaction chamber, and

a carrier air source for providing carrier air to the phase reaction chamber,

wherein the low energy, high vacuum environment provides a change of phase by separating the contaminated mist into a contaminated gas and liquid mist phase.

2. (New) The separation system of Claim 1, further comprising a condenser for condensing the contaminated gas.

3. (New) The separation system of Claim 2, wherein the condenser receives the contaminated fluid.

4. (New) The separation system of Claim 3, wherein the condenser increases the temperature of the contaminated fluid.

5. (New) The separation system of Claim 2, wherein the carrier air transports the contaminated gas to the condenser.

6. (New) The separation system of Claim 1, further comprising a water-air heater for equalizing the temperature of the contaminated fluid and the carrier air.

7. (New) A method of removing contaminants from a contaminated fluid comprising:

converting the contaminated fluid to a contaminated mist,

separating the contaminated mist into a contaminated gas and a liquid mist in a low energy, high vacuum environment,

condensing the contaminated gas to a contaminated liquid,

converting the liquid mist to liquid droplets, and

collecting the liquid droplets.

8. (New) The method of Claim 7, further comprising providing carrier air to assist in transporting the contaminated gas to a condenser.

9. (New) The method of Claim 8, comprising preheating the carrier air to the temperature of the contaminated liquid.

10. (New) The method of Claim 8, comprising using a vacuum to draw the carrier air and contaminated gas to a condenser.

11. (New) A separation system for use in removing contaminants from water comprising:

a phase reaction chamber, wherein the phase reaction chamber comprises:

a distribution header and at least one atomizer spray nozzle for converting a contaminated fluid to a contaminated mist;

a vacuum pump for providing a low energy, high vacuum environment in the phase reaction chamber, wherein the low energy, high vacuum environment provides a phase change by separating the contaminated mist into a liquid mist and contaminated gas,

means for converting the liquid mist to liquid droplets;

means for receiving the liquid droplets,

and a carrier air source for providing carrier air to transport the contaminated gas toward the vacuum pump.

12. (New) The separation system of Claim 11, wherein the carrier air passes over the means for converting the liquid mist to liquid droplets toward the vacuum pump.

13. (New) The separation system of Claim 11, wherein the carrier air passes through the liquid droplets.

14. (New) The separation system of Claim 11, wherein the separation system further comprises a water-air heater, wherein the water-air heater equalizes the temperature of the carrier air and the temperature of the contaminated fluid.

15. (New) The separation system of Claim 11, further comprising a condenser for receiving the contaminated gas.

16. (New) The separation system of Claim 15, wherein the condenser further receives the contaminated fluid.